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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/626,157	07/26/2000	Simon Jobson	608-216	9273

23117 7590 03/10/2006

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EXAMINER

WACHTEL, ALEXIS A

ART UNIT PAPER NUMBER

1764

DATE MAILED: 03/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/626,157

Applicant(s)

Examiner

Alexis Wachtel

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-23 and 25-28 is/are rejected.
- 7) ☒ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6-9-05.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

Detailed Action

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 15-22,25-28 rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,143,921 to Karim et al.

With respect to claim 15, Karim et al teach an apparatus for performing an integrated process for the production of acetic acid and/or vinyl acetate, which comprises:

a first reaction zone (21) for contacting a gaseous feedstock comprising ethylene and/or ethane and optionally steam with a molecular oxygen containing gas in the presence of a catalyst active for the oxidation of ethylene to acetic acid and/or ethane to acetic acid and ethylene to produce a first gaseous product stream comprising acetic acid, water and ethylene, either as unreacted ethylene and/or as co-produced ethylene, and optionally also ethane, carbon monoxide, carbon dioxide and/or nitrogen;

a second reaction zone (23) for contacting in the presence or absence of additional ethylene and/or acetic acid, at least a portion of the first gaseous product stream comprising at least acetic acid and ethylene and optionally also one or more of water, ethane, carbon monoxide, carbon dioxide and/or nitrogen with a molecular oxygen-containing gas in the presence of a catalyst active for the production of vinyl

acetate to produce a second product stream comprising vinyl acetate, water, acetic acid and optionally ethylene, said contacting in said second reaction zone being carried out heterogeneously with the ethylene, acetic acid and molecular oxygen-containing gas being present in the gas phase;

a separator (24) for separating said second product stream by distillation into an overhead fraction comprising vinyl acetate and water and a base fraction comprising acetic acid;

a first distillation column (26) through which said base fraction is passed;

Karim et al do not illustrate the use of a decanter through which an overhead stream from said first distillation column is passed. However, since the first distillation column 26 outputs both a crude VAM/Water stream and an H₂O stream which is returned to the process, it is obvious that a decanter is indeed employed by Karim et al to effect this phase separation.

With respect to claims 16 and 21 said first reaction zone (21) comprises a single reactor.

With respect to claims 17 and 21, Karim et al do not teach that said first and second reaction zones comprise several reactors in series or parallel. However, it is well established in the reactor art to employ multiple reactors in series for the purpose of increasing production capacity. Therefore it would have been obvious to one of ordinary skill to have configured first and second reaction zones such that each can be defined by multiple reaction zones in series. One of ordinary skill would have been motivated by the desire to provide suitable quantities of vinyl acetate to satisfy market demand.

With respect to claim 18, wherein a heat exchanger (22) is provided between said first reaction zone and said second reaction zone.

With respect to claim 19, wherein the first and second reaction zones are contained within the same vessel (Col 6, lines 30-32).

With respect to claim 20, said second reaction zone comprises a single reactor (23).

With respect to claim 22, Karim et al do not teach do not a heat exchanger provided between said second reaction zone and said separator. However, since the separation process is energy intensive, achieving heat integration by way of a heat exchanger would be desirable and obvious to one of ordinary skill. One of ordinary skill would have been motivated by the desire to decrease energy costs and achieve greater overall process energy efficiencies.

Regarding claim 23, applicants "vaporizer" as claimed is not differentiated from the reboiler vaporizer (not illustrated) corresponding to the distillation column 26 of Karim et al. It is suggested to positively recite this stream in connection with Applicant's Acetic acid purification column.

With respect to claims 25-28, Karim et al do not specifically teach the use of a fluid or solid bed in either the first or second reaction zone. However, using either a fluidized or solid catalyst bed would have constituted mere engineering design choice absent a showing of unexpected results.

Allowable Subject Matter

3. Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: With respect to claim 24, Karim et al do not teach a second distillation column through which a vapor fraction from said vaporizer is passed. Karim et al do not recognize the need for using an additional distillation column downstream from the vaporizer.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Wachtel whose telephone number is 571-272-1455. The examiner can normally be reached on 10:30am to 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Glenn Caldarola, can be reached at (571)-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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